

Mr. Save's way of Natural Farming

Based on carefully observing nature and some fourteen years of experience, Mr. Save developed his way of Natural Farming. This balanced way of farming leaves important aspects of farming such as tillage, fertilisation, weeding and pest control as much as possible to natural processes. According to the authors a lot of hard work has become unnecessary and relatively high production and income are obtained. But even more important, this way of farming conserves the natural resource base and guarantees food security also for future generations. In this article Mr. Save explains the principles on which he built his orchard farm.

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I started my farm 'Kalpavruksha' in South Gujarat about 40 years back. At that time the use of agrochemicals was just starting to spread in India. Like most other farmers, I abandoned my father's traditional farming methods and adopted the conventional or chemical farming methods. First, I believed chemical farming to be a superior scientific method. My farm was even used as demonstration farm and scientists of Bombay and Poona followed my results. But as I was very fond of experimentation I carefully analysed what happened. At the end of the third year, I realised that I was spending more and more to get less and less. For that reason I decided to experiment with organic farming and started on a small plot on which the use of chemicals was totally stopped. Initially, there was further fall in production but farm profits were higher than before due to savings on costs of inputs. Each year I converted more acreage to organic farming. Steadily, both the soil and production improved. External inputs of organic matter were gradually reduced. Now, my farm is already 32 years completely free of chemicals. By carefully observing nature I developed a system of Natural Farming which is very productive while conserving the natural resource base. Although there are similarities in spirit and philosophy with Natural Farming as developed by Mr. Fukuoka (see box on Fukuoka), who in 1990 visited my farm, I developed my way of farming directly from nature. My farm is my university!

'Sanghavi' farm

Five years ago, Ashok Sanghavi, inspired by the results of my way of farming, asked me to help him start a farm on land which he bought nearby my place. On 'Sanghavi' farm we now try new techniques of Natural Farming (see box on new way of coconut farming). On this farm a training centre is being built to help other farmers to adopt their farms to Natural Farming. Trainings will be conducted in local languages, Gujarati, Marathi and Hindi. Both farms are managed on the basis of 6 principles which I found to be important for Natural Farming.

Earthworms for tillage.

In an orchard the soil needs no tilling. Only in the first year initial tilling is necessary to remove medium and large size rocks and to facilitate spread of roots. Subsequent tilling is harmful as it cuts off the roots. Instead effective tilling can be carried out by earthworms who work free of charge. Therefore, it is most important to create the right environment for the earthworms, i.e. dark, moist, well aerated surroundings with an abundance of organic matter. This may be achieved by means of organic fertiliser, mulching, providing ground cover of vegetables, legumes, or at least letting the weeds grow and by shading. In such conditions, the earthworms will usually come and multiply on their own. Sometimes, earthworms can be bought from a vermicomposting farm. However, often these are manure worms (*Eisenia foetida*) which only survive in compost heaps. In orchards, species are needed which dwell in the soil and are adapted to the local conditions (see box on vermiculture biotechnology). Buying earthworms or even vermicompost with earthworm cocoons has often led to considerable financial loss which may make farmers unnecessarily disheartened about Natural Farming. If irrigation is used (also drip irrigation) earthworms will stay active the whole year round, even during a long dry season.

Organic replaces chemical

To enhance soil life, especially earthworms, all kind of organic manure can be used. Organic manure spread on the soil will be eaten by earthworms and disappears within a few months during the rain season. In 'Kalpavruksha' farm most organic matter applied comes from internal sources: crop residues, leaves, weeds and especially biogas slurry. As external inputs, I use about 1.5 tons of organic manure mainly cow and poultry waste, about 3 tons of municipal garbage and about 14 tons of silt obtained from the bottom of a nearby pond.

Feeding soil life, not plants

Both organic manure and irrigation water are kept at a certain distance from the plants. Manure is not the food of the plants but it is the food of soil life. These organisms make the soil rich in humus, NPK, micronutrients and other vital substances. Humus enables the soil to absorb and retain moisture and prevents leaching of plant nutrients. Both moisture and plant nutrients are sucked by the roots and transported to the leaves. Trees are irrigated at a certain distance from their trunks. Organic manure is applied on the sides of the trenches or in the trenches in the case of biogas-slurry. When plants are nourished this way, they develop strong roots which protect them against strong winds. Secondly, because no chemical fertilisers are used, they do not become thirsty. In my farm the trees need only 30% of the irrigation water as compared to the amount normally used in gravity irrigation. Since the trenches are well mulched and earthworm activity is high, absorption of water is rapid, and evaporation losses are greatly reduced. During monsoon, excess water in the porous soil drains away into the trenches.

No monocultures

Nutrient rich excreta of earthworms near the trenches provide a buffet for the plants, each of which draws according to its needs. Since all nutrients are abundant in supply, it is not necessary to adjust to the individual specific requirements of each species. However, the position of each species in relation to the trench is important, as its roots should be able to reach it. Thus, depending on the nature of the plant, the appropriate distance to the trench is chosen. Short life, medium life and long life plants with respectively short, medium and long root systems are planted together in such a way that following the development of the long life plants, the short life and medium life plants can be harvested. When starting a new orchard plot vegetables (short life plants), banana and papaya (medium life plants) and chikoo or coconut are planted together. After 3 months, vegetables are harvested, after two to three years banana is taken away and used as mulch, leaving full space to chikoo or coconut. Many other species of trees are interplanted in lesser numbers.

Natural pest control

Plants nourished this way are very healthy and develop strong resistance to diseases so that pesticides are not needed. It is not that pests do not attack plants being grown the Natural Farming way. They do, but they are kept under control biologically in the sense that every pest would be prey to another and not all such pests would be harmful to the plants. Pests like spiders, red ants, some birds (e.g. owls), etc do not harm the plants but they eat away harmful pests and rodents. Some types of plants like sweet neem (curry-leaves, (*Murraya koenigii*) help in controlling the pests. Also other natural methods can be used, such as a mixture of one part of cow urine and eight parts of water to be sprayed on the plants. Plants need care not cure!. Plants grown this way cannot easily be beaten in their race with weeds. Once weeds are deprived of sunlight they are defeated and die. These dead weeds should not be removed as they protect the soil from strong radiation, prevents loss of moisture and provide additional manure.

No hard labour

Natural farming relieves a large work force from seasonal, irregular, laborious and badly paid work. Also, we experienced that quality and shelf life of crops grown the Natural Farming way is much better as compared to conventionally grown crops. For that reason we get higher prices for our products. For example, for bananas we get Rs 2.50 instead of Rs 1.75 per Kg. We are convinced that farming done the

Natural Farming way makes sound economic sense. On an annual expense of about Rs 50,000/-, my annual revenue is more than Rs 500,000/-, a profit margin on costs of more than 900%. Apart from being ecologically sound, Natural Farming can increase food production considerable in an economically feasible and profitable way. Unless we move to methods which renew soil fertility even while getting maximum production from it, we cannot hope to solve the problem of food for all the people in the years to come. As I always say: oil may last till 2050, soil will not!

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